

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, October 6, 1885.

The President, W. R. BIRDSALL, in the chair.

The minutes of the previous meeting were read by the Secretary and approved.

The report of the Council was read, and on motion was adopted.

Drs. M. A. Starr, I. Adler, J. B. Emerson, R. M. Cramer, and R. G. Wiener, were recommended for membership.

The Secretary was instructed to cast an affirmative ballot for all the candidates. The Secretary so cast the ballot, and the President declared the gentlemen elected to membership.

Dr. E. C. SEGUIN then read a paper, entitled "A Contribution to the Pathology of Hemianopsia of Central Origin." Case with specimen. (This paper will appear in full in the next number of this JOURNAL.)

Discussion.

Dr. T. R. POOLEY.—Mr. President: Without knowing at all the direction which Dr. Seguin's paper would take, I hastily looked over my records this evening, and briefly abstracted five cases of hemianopsia, of which I have notes. One of these cases is the case referred to by Dr. Seguin in his paper. I feel myself quite incompetent to discuss the physiological and theoretical question as to the location of the lesion, and the importance of different symptoms in helping us to exactly locate the lesion in the brain. Nor will I at this late hour refer to all the cases of which I had

intended to relate somewhat in detail the clinical histories. I shall content myself with speaking only of one case, which has recently come under my observation, and which is now under treatment. It is a case which I saw a week ago, that of a gentleman, aged thirty-five, who came under my care in 1879 for comparative blindness of his left eye, which I found to be due to circumscribed choroidal exudation, situated near the macula lutea. In my former experience with such cases I always believed them to be due to syphilitic infection, and careful inquiry into the history of this case showed it to be also due to this poison. The patient remained for a time under treatment for this inflammatory exudation, from which he recovered with a scotoma, and enjoyed comparatively good health and freedom from all further syphilitic manifestations until a week ago, when he consulted me again.

On this occasion he was driving with his wife in the country, and suddenly became perfectly blind. This blindness lasted for but a few moments. Upon recovering he ascertained that there was dimness of vision upon the left side, which continued until he came to see me. Examination showed left homonymous hemianopsia, the blind area extending almost to the point of fixation in each eye. Examination of acuteness of vision showed in the left eye (and this is interesting because of the previous condition of the eye), $\frac{22}{100}$; the right eye, $\frac{20}{20}$, or perfect. The optic discs were quite normal, the blood-vessels were of full size. There was no indication of atrophy of the optic nerve by neuritis. The interesting and remarkable fact in this case is the improvement which took place within a week from the commencement of treatment. On account of the previous history of the case the patient was placed upon large doses of iodide of potassium. Former experience with the use of this drug, however, led me at first to give comparatively small doses, only fifteen grains. But I found that he tolerated large doses much better than he did small ones, and I immediately began pushing the remedy, so that I gave him one drachm three times a day by the third day. Already upon the first day after treatment had been begun, the

visual fields had increased in extent, and this increase in the visual field has steadily continued until the present date. Unfortunately I have not had opportunity to make measurements with the perimeter, the patient being treated at his home, but I may estimate that the field of vision has extended from near the point of fixation to one third the normal limits, the increase being apparently symmetrical. I should like very much to have Dr. Seguin's opinion as to whether, in a case of this kind, in which there has been such marked improvement within a week's time, we may hope for permanent benefit.

Dr. A. M. STARR.—At this late hour I will not detain the Society but a moment. I think the list Dr. Seguin has presented is a complete one, with perhaps a single exception—that of a case reported by Demange in the *Révue de Médecine* for May, 1883. That case is referred to by Dr. Gowers, in his last work on "Diseases of the Brain," in a way to lead one to suppose that it supported the assertion of Ferrier, that the angular gyrus is the centre for vision. I found, however, on looking up the case, that the lesion was one which coincided very largely with that of the first case of Westphal, and is very well represented by the diagram shown by Dr. Seguin of that case. It was a very large lesion, involving both parietal lobules and the occipital lobe. Gowers refers to that case as proving that a lesion upon one side of the brain may produce blindness of the opposite eye, and says it supports Ferrier's assertion of amblyopia being due to lesion of one angular gyrus. In the original report, however, it is only stated that the patient could not see well with the left eye, and it does not state that there had been any careful measurement of the field of vision. Therefore, in all probability, the patient had hemianopsia, as in a number of cases reported by Dr. Seguin, and in a number which I collected, lack of careful observation on the part of the examining physician failed to elicit the symptom, which was undoubtedly present. The necessity for careful examination in all of these cases has been dwelt upon by Dr. Seguin, and I think it ought to be emphasized, because it is evident, from the history of these

cases, that a patient with hemianopsia does not notice the exact field of vision, but only notices that he is blind in one eye, and refers it to the eye whose field of vision is most largely implicated. The necessity for such an examination is shown in the fact that Dr. Seguin has been able to collect eight cases in addition to those which I had collected—that is to say, eight new cases have occurred since January, 1884. This great increase in the number of cases of hemianopsia is only apparent, few cases not having been recorded previously because of imperfect examinations of the visual field.

I would not anticipate Dr. Seguin in answering the question asked by Dr. Pooley, but I have in my hand a case, published by Baer, in Volkmann's *Sammlung klinischer Vorträge*, which is almost identical with that related by Dr. Pooley this evening: a case of syphilitic hemianopsia coming on suddenly in a syphilitic individual. A series of diagrams are given, showing the progressive improvement of the patient, and final complete recovery.

My attention was first called to this subject three years ago, by seeing a case of hemianopsia in Charcot's wards, and in his lecture Charcot virtually retracted his own diagram and adopted one like that shown by Dr. Seguin, so that I think we should cease to copy the old diagram made by Charcot, as it has been abandoned in France and Germany.

The absolute necessity for such a collection of cases as Dr. Seguin has made for settling any disputed question of localization is perfectly evident to you all. It is the only way in which this question of localization can be really determined. To make conclusions from physiological experiments I think is no longer warranted. We must go to carefully made autopsies.

It may be interesting to know, that in October, 1858, the Pathological Society of Philadelphia discussed the subject of abscess of the brain, and at that meeting Dr. Weir-Mitchell presented a case with the records, in which a large abscess, at the posterior part of the brain, involving both occipital lobes, was attended with blindness, and the blind-

ness seemed to be the chief local symptom (as we should now say) of the disease. The members of the Pathological Society were at a loss to explain the occurrence of blindness with this lesion in the occipital lobes. I think it is encouraging to the general cause of clinical diagnosis that now, after the lapse of these years, we are able to explain perfectly that case which then so puzzled the Pathological Society of Philadelphia.

Dr. SEGUIN closed the discussion, and apologized for having detained the Society with so long a paper. With reference to Dr. Pooley's question, he would have to decline to answer it for want of experience. He had never seen a case of hemianopsia which was not embolic, or, possibly, due to a tumor, and in which there was no indication for treatment.

Stated Meeting, November 3, 1885.

The President, W. R. BIRDSALL, M.D., in the chair.

Dr. LEONARD WEBER read a paper, entitled "A Case of Ophthalmoplegia Externa."

Peter W., æt. fifty-two, father of a number of apparently healthy children, has worked in an iron foundry for the last thirty-two years. His mother died of pulmonary hemorrhage at sixty-four years of age; his father died at fifty-three, of typhoid fever. Has a brother and sister living in good health. He has never had syphilis. Fourteen years ago he was under treatment for hæmoptysis, accompanied by fever and other signs of acute lung trouble. But he recovered in the course of a year or so, and has been able to continue his work since. Nevertheless, the signs of old pulmonary trouble are well marked in the interscapular space, particularly on the right side. In the course of years the patient sustained various injuries about the head, but no fracture of the skull. At no time did his condition give any evidence of renal or cardiac disease. Since February 1, 1885, he experienced considerable and lasting pain at the back of the head, on the right side. In getting out of bed on the morning of February 23d, of the present year, he felt somewhat dizzy, and noticed a pain in the right temporal, extending to the occipital, region. He also found that he could not use his eyes as on the night before. He continued to work, however, and on March 9, 1885, consulted Dr. Mittendorf, who reports that the use of the patient's right eye was lost early in childhood. The left eye gave him no trouble until recently. On March 9th, both eyes were found to have turned considerably

toward the nose. Neither eye can be moved in the direction of the external rectus. The pupils slightly contracted. Accommodation good. Treatment: Hypermetropia necessitating use of strong glass for left eye to make reading possible. Vision of right eye, which has a corneal macula, very poor. Acuity of vision of the left eye (not fairly tested, patient presenting himself at night), about $\frac{3}{80}$. Marked hyperæmia of left disc. Interior of eyes normal. Paralysis extending to third nerve, but was not complete. Patient would move his eyes downward considerably at times, but he seemed to have lost control over the movements of the muscles, and if directed to look in a certain direction he could not do it. On March 17th, he first noticed some numbness and a cold feeling, from the fingers up to the middle of the arm, on the right side. While this sensation was unpleasant, it in no way interfered with his work of using a heavy hammer. But about April 15th the arm became weak. At the same time, co-ordinate muscular action became impaired. He was unable to direct blows with precision, often striking an inch to either side of the object. He soon had to quit work.

He consulted me on May 14th. At that time the eyeballs were almost immovably fixed. Nevertheless, there was complete paralysis of the external recti only. The levatores palpebrarum were not affected, neither were the muscles of the iris. The right hand was colder than the left. Sense of touch diminished, actual muscular power also. Visible trembling and gradual dropping of wrist when the extremity is extended horizontally, showing weakness of extensors. Slight exaggeration of patellar tendon reflex on right side.

The patient's speech was not very articulate: some dysarthria existed already. There was no dysphagia, and no symptom indicating disturbance of cerebral nerves other than of the fifth pair. The gait was unsteady, resembling that described by Nothnagel in connection with certain cerebellar affections. The lesion producing the above symptoms I am inclined to locate in the pons. As to its nature, it is probably a neoplasm of syphilitic or tubercular origin.

The patient was ordered iodide of potassium in doses beginning with ten grains three times a day, which was increased by five grains every week. In this way the dose was carried up to forty grains three times a day. From June on a noticeable improvement began, and by September 2d, his speech had become almost normal. The power of his right arm was much increased. There was no more headache. The eyes had largely recovered their mobility.

On October 30th it was observed that the eyes could be freely moved, although some paresis of the external recti still remained. The patient was then taking forty-five grains of the iodide three times a day. Some spitting of blood now occurring, the remedy was discontinued for two weeks, and then resumed with an initial dose of twenty grains.

I believe the anatomical lesion to be situated in the left half of the pons, near the tegmentum, involving the lemniscus, and extending beyond the raphé, some little distance into the right half of it.

Discussion.

Dr. W. M. MITTENDORF said the author of the paper was to be congratulated on the result of the treatment in this interesting case. As stated in the paper, when the patient visited him there was this paralysis of the external recti, and he thought there was also a slight defect of the facial nerve, and he was inclined to place the lesion in the upper part of the fourth ventricle. But as motor-oculi paralysis developed, he came to the conclusion that there was a more extensive lesion than he had at first supposed. An interesting feature in the case was the fact that, while there was ophthalmoplegia externa, there was at no time, while the patient was under his care, any affection of the intrinsic muscles; and this fact, according to recent investigations, would point to a lesion below the aqueduct of Sylvius. The cases of ophthalmoplegia externa without other symptoms were very few. He had now under his care a young man with ophthalmoplegia, affecting both eyes, in whom there had been no change for two years. The lesion, he supposed, was to be placed in the region of the corpora quadrigemina. At one time he thought there were real ataxic symptoms, but he was unable to make out a clear case of locomotor ataxia.

Dr. T. R. POOLEY thought the fact that the patient struck to the outer side of the body, which had been attributed by the author to paresis, might have been caused by faulty projection depending upon paresis of the external rectus muscle. He had never seen a case of complete paralysis of the ocular muscles with so satisfactory results.

Dr. WEBER remarked that at first there was no tendency to strike outward. In reply to a question by Dr. Spitzka, he said there had been no wasting of the muscles, although the general nutrition of the patient had not been at all times equally good.

The President had reported two cases to the American

Neurological Society, which in some respects resembled this case, but in some other respects there were important differences. He reported them as cases of ophthalmoplegia externa, according to Hutchison's nomenclature, and they were, strictly speaking, cases of this sort. The ciliary muscle and the iris were not involved at any time, while the external muscles of both eyes were involved to a greater or less degree. No other nerve tract in the body could be found defective. The two cases had remained about in the same condition, with slight improvement for two years. It seemed to him, however, that the cases which Hutchison had reported under the name ophthalmoplegia externa did not all belong to that class, for in only two or three were the external muscles of the eye alone affected. Most of his cases were of a complex character. It seemed to him that the pathology of these cases must vary greatly. The lesion would probably be found to vary not only in location, but also in character. His cases he thought were due to a slow degenerative form of disease, similar to that in progressive muscular atrophy. Certainly some of Hutchison's cases were of a multiple character, and probably in many others the lesions were multiple.

Dr. E. C. SPITZKA spoke substantially as follows: I have been much pleased to find a doubtful point in the past history of this case cleared up by Dr. Pooley's discovery of a residual paresis of the other rectus externus. It adds, however, to the difficulties of localization, though not incompatible with the diagnosis of Dr. Weber. With regard to Dr. Pooley's suggestion, that the loss of skilled motion on the right side is due to the eye trouble, that possibility had already been taken into account, and disposed of for the following reasons: First, the motor disturbance was not present when the eye trouble was at its height, nor present when the latter began. I believe that ophthalmologists will agree that locomotor trouble is apt to be proportionate to the intensity of the eye complaint, and, if any thing, to be regulated provided the eye trouble remains stationary or improves. In this instance, however, we have the eye trouble at its maximum without arm trouble,

and arm trouble developing as the eye trouble improves, and manifested when the eyes are closed. Besides, we must bear in mind that, as the patient has not had the use of his right eye from childhood, he would not be as likely to be disturbed in his movements as patients with monocular vision would be.

I believe the oculo-motor disturbance can be best accounted for by a regional extension of lesion in that part of the tegmentum which lies between the trochlearis and abducens nuclei, and where certain coördinating tracts run. I shall have an opportunity perhaps of demonstrating specimens of a case in which but one special conjugate movement of the eyes was interfered with, and there was a neoplasm in and near the abducens level, chiefly unilateral.

Dr. WEBER asked Dr. Mittendorf whether there were not for a time symptoms of hemianopsia.

Dr. MITTENDORF said there was no lesion of the retina or nerve when he examined the patient.

Dr. M. A. STARR asked whether there had been any ptosis.

Dr. WEBER replied in the negative.

Dr. STARR thought that a lesion lying outside of the cerebral axis, as a syphilitic meningitis, affecting the abducens nerves at their exit between the medulla and pons, might explain the symptoms more intelligibly than to suppose a lesion in the floor of the fourth ventricle affecting the nuclei themselves. Of course such a lesion would yield to syphilitic treatment, whereas he could not conceive of a nerve nucleus being destroyed and again restored. If the third nerve were involved, we might suppose the meningitis had extended a little farther forward. He had the privilege of seeing a case in Bamberger's wards at Vienna three years ago, in which the third, the fourth, the sixth, the seventh, and the eighth nerves upon one side were paralyzed, and Bamberger made the diagnosis of lesion at the floor of the fourth ventricle, involving the nerve nuclei from above downward, especially so as there were signs of atrophy in the facial muscles. The autopsy showed localized meningitis affecting these nerve trunks after their exit from the cerebral axis.

Dr. WEBER again mentioned the symptoms present, and said that so far as the oculo-motorius was concerned, there certainly was an affection of the superior and inferior recti.

Dr. E. C. SEGUIN had not been convinced from seeing the patient this evening that there were any ataxic symptoms in the right upper extremity. The dropping of the fingers might indicate either weakness of the extensors or the loss of a certain amount of muscular sense, which might be due to a lesion situated in many places besides the pons. He was inclined to Dr. Starr's view. The discussion seemed to indicate the vanity of theoretical pathology.

Dr. SPITZKA.—In my crude way I had always regarded muscular-sense disturbance as a factor of ataxia, and I believe authorities generally would so consider it.

Dr. SEGUIN.—Erb recently described a case in which there was ataxia, but all categories of sensation were perfect.

Dr. SPITZKA.—That has nothing to do with the question. Ataxia is of different kinds—cerebellar, spinal,—due to ordinary contact, to muscle sense, space sense, and coördinatory disturbances; sometimes singly, sometimes combined. But muscular-sense disturbance is mentioned in the definitions of ataxia by our best authorities, and I should like Dr. Seguin or any one to formulate a general definition of ataxia which should declare muscular-sense disturbance not to be a factor. It is precisely because there is muscular-sense disturbance that I believe the lesion to be pontile. The interolivary layer happens to run in the deep part of the pons, in those levels where the cranial-nerve symptoms of this case are possible. I have shown, if any one case be conclusive, that this layer is the muscular-sense tract, and the case agrees with others of its kind. There is a combination of slight paresis with the muscular-sense disturbance which is almost characteristic of certain pons diseases, it requiring but an extension of the lesion across the deep transverse pons fibres to involve the pyramidal-tract bundles. With regard to the suggestion of a meningitis, it does not seem to me to harmonize either theoretically or with experience. It is true that the affection of both abducens nerves might be accounted for in this way. But there

are other symptoms which the supposed lesion must accommodate. How to account for the arms symptoms on this ground I do not know. There are too many important nerves near the hypoglossal, whose function is intact, to account for the dysarthria on the ground of meningitis. Besides, there is no true paresis of the hypoglossal. Its intrinsic movements are well executed, and there is no evidence either of nuclear or peripheral hypoglossal palsy; in other words, it is some higher tract—the speech tract—that is involved. We know that this runs somewhere in the pons, near the raphé, whereby another nerve (the fifth) is affected in its decussation, thus accounting for the bilateral disturbance of face sensation. But the strongest objection to the meningitis theory is that it would have us believe it possible that the third pair can be diseased so totally in its extracerebral course—or intracerebral for that matter—as to cause total paralysis of ocular motion, without any affection of the pupil, the accommodation, or the levator palpebræ. I have never heard of such a case, and do not think there is one reported, and do not believe such possible. If there were no other reason for suspecting pons disease, it would, in my opinion, be constituted by the character of the ocular paralysis. But in addition we have the almost pathognomic combination of paresis and ataxia. True, Dr. Seguin calls it muscular-sense disturbance, which it is undoubtedly—with this difference in interpretation and definition: that he says it is not ataxia, and I consider it to be such.

Dr. STARR thought that the abducens nuclei could not be involved, together with the interolivary layer, without affecting the *formatio reticularis*, which ought to show sensory symptoms if affected.

Dr. SPITZKA.—The difficulty seems to be that Dr. Starr has only one particular level of the pons in mind, one not necessarily involved in this case, inasmuch as the nuclei of the abducentes, but coördinating tracts are supposed to be at fault. Even allowing the lesion to be in the level spoken of by Dr. Starr, the difficulty he discovers does not seem to me to be as he states it. That no symptoms referable to the *formatio reticularis* are present, can constitute no

objection, as long as the function of that part which lies between the raphé and the abducens roots is unknown. The abducens roots, however, skirt and partly perforate the interolivary layer, and so far it is possible to have coincident abducens and muscular-sense disturbance; the real difficulty in this case would be to account for the double involvement of the abducens, without the bilateral involvement of the interolivary layer. As I understood Dr. Weber when he presented the case to me, he supposed the lesion to lie in the anterior third of the pons with a dorso-mesal, and possibly caudal, extension to near the ventricular floor. Here the altitude of the tegmentum is extremely low, a comparatively small lesion may involve the interolivary division of the lemniscus—I mean its continuation, the raphé, with its trigeminal decussation, the posterior longitudinal fasciculi, the pyramidal tract slightly, and the speech, either after Raymond and Artaud or the other theories. The advantage of this explanation over the others offered is, that it requires the smallest lesion to harmonize with the symptoms, while grave objections can be urged against every other location, particularly the one which would locate the lesion as a meningitis involving peripheral nerves. I must reiterate, that till the inconsistencies of the oculo-motor paralysis are explained away, insuperable obstacles oppose the meningitis theory. Possibly Dr. Weber's reference to the voluntary control of single ocular muscles might lead to misapprehension. No ocular muscle is capable of isolated movement under voluntary effort. But groups of such are. There is a ready-made coördinated mechanism of which the posterior fasciculus is probably the important mediator, which regulates the coördination of both globes, and it is here where the trouble lies.

Dr. WEBER then read a paper entitled "A Contribution to the Study of Landry's Ascending Paralysis." See this number, p. 442.

Discussion.

Dr. E. C. SEGUIN had not seen a case of Landry's disease, but he had always had a strong suspicion that there was a great similarity if not identity between that disease and poliomyelitis acuta. The mere matter of

ascension did not seem to him to be of so great importance in the diagnosis. The views which, when a pupil, he had heard Brown-Séquard frequently express with regard to ascension of spinal symptoms had always seemed to him very reasonable. They were that ascension of symptoms might be apparent when they did not represent any ascending lesion in the cord; they were due to a change in the depth of the lesion in the cord. Suppose theoretically a case of paralysis of the arms, with later paralysis of the legs; it is not at all necessary to suppose a descending lesion in order to explain the descending symptoms; a change in the depth of a lesion which extends but a little ways up and down the cord will account for the descent of the symptoms. In the same way we could account for ascending symptoms without supposing an ascending lesion in the cord. Many authors laid stress upon the value of negative symptoms in the diagnosis of Landry's paralysis, such as absence of degenerative reaction and muscular atrophy; but it was equally true that in many cases of poliomyelitis these symptoms were retarded. He regarded Immermann's case as instructive, in as much as it showed the similarity if not the identity of the two diseases; the difference might be in exact location or in the virulence of the affection.

Dr. SACHS thought that it would be well if more attention were paid to the character of the pathological processes underlying Landry's disease and poliomyelitis, in addition to the question of the exact localization of the respective lesion. While the question of infectious origin had not been demonstrated in either acute myelitis or Landry's disease, Dr. Sachs thought it deserved investigation.

Dr. WEBER closed the discussion, reviewing the differential diagnosis between Landry's paralysis and poliomyelitis anterior acuta.

Stated Meeting, December 1, 1885.

The President, W. R. BIRDSALL, M.D., in the chair.

Dr. WILLIAM A. HAMMOND read a paper on "Unilatera Hallucinations."

The fact that hallucinations of sight and of hearing might be unilateral—that is, discerned by one visual or auditory centre only, had long been known, though it had not, even at this day, attracted the degree of attention which Dr. Hammond thought it deserved. Several authors had considered the matter from a more or less philosophical standpoint, and had brought forward interesting cases in support of their views. The first reference to the fact that hallucinations might be one-sided which had come under his notice, was made by Calmeil, it being a case of hallucinations coming from the left ear. Baillarger cited two cases of hallucinations of hearing occurring in but one ear. Other writers who had contributed to the subject, and cited by Dr. Hammond, were, Schroeder Van Der Kolk, Alexander Robertson, E. Regis, Dumont Pallier. Erroneous impressions, of different character, occurring on either side, had received attention at the Medical Congress at Rouen, in 1883.

Dr. Hammond then gave the histories of several cases of unilateral hallucinations which had come under his own observation.

CASE 1.—The first was that of a gentleman in good general health, who contracted the illusion that the ticking of a clock on the mantle-piece consisted of articulate words. After a time it sounded like human speech, and appeared to give commands, such as not to eat of soup, not to drink wine, etc. It was learned that these illusions came only through the left ear and never through the right, but hearing in other respects was not the least impaired in either ear. The patient did not allow himself to be deceived into the idea of accepting these commands as realities, yet he was influenced by them in his actions. This case and the one next mentioned were referred to in Dr. Hammond's work on insanity.

CASE 2.—A young lady, of good mental development, but of delicate physical organization, was for several months almost constantly troubled with apparitions of various kinds of faces. A few weeks before they first appeared she had looked at engravings of Greek and Roman masks, which had made a strong impression upon her. If she closed either eye about half of the faces would disappear, and if she closed both eyes all would disappear, but would return again in a little while, although less distinctly. By imitating the experiment of Sir David Brewster, pressing on the outside of the globe of either eye so as to produce temporary strabismus, the patient could make any face appear double which had been visible for several minutes. There was no impairment of

vision of any other kind, and no abnormal ophthalmoscopic appearances. The peculiar features of the case were, that the hallucinating images were divided between the two eyes, part being seen in the one and part in the other, showing, therefore, the distinctness and divisibility of the action of the two visual centres, and the fact that the stimulus of a strong light was necessary in order that they should be developed.

CASE 3.—A young man received a blow just above the left ear. A few weeks subsequently, while engaged as a salesman, he saw a large black cat sitting on the floor immediately before him. He had no doubt of the reality of the occurrence until he walked toward the animal, when it receded as far as it was when he first saw it. After this the cat seemed to follow him wherever he went, but his sense of touch was never deceived. The image was larger and most distinct in the evening, and during the paroxysms of pain at the seat of the injury on the head, which returned several times a day. He discovered, on shutting the eyes alternately, that the vision occurred only on the side corresponding to the injury. There were no abnormal ophthalmoscopic appearances nor defects of vision other than those mentioned. That there was serious brain lesion, involving, probably, the left optic thalamus, Dr. Hammond said he had no doubt. He had also been of opinion that there had been fracture of the inner table of the skull at the point at which the blow had been received, and he proposed trephining, which was not consented to.

CASE 4.—A lady about fifty years of age became the subject of most malignant persecutions through anonymous letters, the sender of which she did not know. While thinking of who the person could be that sent the anonymous letters she happened to look out of the bay window and saw a man and woman standing in the opening. For a moment she did not doubt the reality of the appearance, but when she arose they gradually faded from view. Afterward they reappeared several times in the month, and finally ceased to appear altogether. The interesting feature of the case was that the man was always seen with the right eye and the woman with the left; if she closed the right eye she saw only the woman, but if she closed the left eye she would see only the man. The vision could be brought on by lying down with the head low. Dr. Hammond thought nothing could be more confirmatory of the idea of the independent action of the two visual centres than such hallucinations; indeed he thought they were strong evidence of the duality of the brain. None of the cases which Dr. Hammond had cited went to support the view that unilateral hallucinations were due to disease or derangement of the organ of special sense involved. Indeed, it was difficult to conceive what connection could exist between disease of the eyes or ears and a hallucination existing in the corresponding side, for if such disease caused a unilateral hallucination we should expect bilateral hallucinations to be the result of disease of both eyes or ears. Dr. Hammond

thought hallucinations were produced by disease or disorder of the central organ of perception, probably of the optic thalamus, and that such erroneous sensorial impressions when limited to one side were evidence that the visual, auditory, or other sensorial centre of the corresponding side was the starting-point.

Discussion on Dr. Hammond's Paper.

Dr. LEONARD WEBER related a case which he thought would interest Dr. Hammond as going to support the view which he seemed to entertain, that unilateral hallucinations were not associated with disease of the special sense concerned, but with an affection of central origin. The man came under his observation in 1879, at which time he was thirty-seven years of age, strong, healthy, very active in business, but in consequence of domestic trouble and mental strain he began to lose sleep, was sensitive to strong light, loud noises, etc., and from 1879 to 1881 was subject to hallucinations connected with the left ear. On going to bed he would be unable to sleep for two or three hours because of whispering noises, growing louder and louder, heard in the left ear, and of two kinds, one soothing and another demandatory. A careful examination by himself and by a specialist in diseases of the ear failed to reveal any thing wrong connected with the auditory apparatus. When the patient's circumstances changed, and he was enabled to lead a peaceful life, the hallucinations disappeared, and had not returned.

Dr. E. C. SPITZKA had not heard the entire paper, but being familiar with the author's views regarding the function of the optic thalamus, he was somewhat surprised that he (the author) had not tried to harmonize his observed facts with the anatomical and physiological facts which had been incontestably established during the past decade. Luys, upon whom Dr. Hammond probably rested chiefly for support of his views, expressed his ideas regarding the functions of the optic thalamus as many as twenty-five years ago, and what he wrote was mere guess-work. Dr. Spitzka said his own views regarding hallucinations were directly opposed to those of Dr. Hammond. He believed that hallucinations had their seat in the cortex, and not in

the optic thalamus or any of the lower ganglia. The optic tract and thalamus might have undergone secondary atrophy, following enucleation of both eyeballs, yet the person would be capable of having hallucinations, showing that hallucinations had not their seat in the optic thalamus. The case cited by Dr. Hammond, in which, during her hallucinations, the patient saw the figure of a man and woman, showed the exercise of mental qualities which could have their seat nowhere else than in the cerebral cortex. Dr. Hammond had asked whether he did not believe a hallucination to be something which had been previously registered in the memory and which was projected outward. He would reply that, without quibbling with terms, that was precisely what he meant by a hallucination.

Dr. M. A. STARR related the facts in a case reported by Vetter, in which a patient having right hemianopsia, imagined that she saw people sitting at her right side, which was the blind field of vision. By a process of exclusion it was shown that the lesion could not have existed in the optic thalamus, but must have existed in the cortex of the occipital lobe. Dr. Starr thought that in all probability the source of the hallucination in this case was cortical irritation. Certainly in a great many cases cortical irritation would produce hallucinations; this was observable in meningitis, in which the optic thalamus was not implicated.

Dr. W. M. LESZYNSKY recalled the case of a woman in an insane asylum, fifty years of age, suffering from mania, who was in the habit of sitting hours at a time with the left ear inclined toward the table, sending, she said, and receiving telegraphic communications. She did not receive the telegraphic communications with the right ear, which she said was only for general use. Acuteness of hearing seemed to be normal, perhaps that in the left ear was a little more acute than that in the right ear.

Dr. SACHS referred to a case of hemiplegia with tumors in both optic thalami and one lenticular nucleus, reported by Meynert, and stated the inferences to be drawn from this case as regards the true function of the optic thalamus. Dr. Sachs also asked Dr. Spitzka whether he could imagine

an excitation of the cerebral cortex, giving rise to an image or hallucination, the revival of such image not being due to an antecedent peripheral irritation.

Dr. L. J. CORNING asked, since hallucinations might be produced by impressions upon peripheral nerves, why they might not also be produced by an irritation at any point in that peripheral tract, as in the thalamus. We would all admit that the higher forms of conception took place in the cerebral cortex.

Dr. C. L. DANA would like to hear the subject discussed which Dr. Hammond probably wished to bring before the Society, namely, the duality of the brain. So far as the mechanism of hallucinations was concerned, he thought all would agree with Dr. Spitzka, that it was essentially in the cerebral cortex. But the exciting cause might be a peripheral irritation acting upon the psychopathic centres.

As to the duality of the brain, he thought there were many more arguments against the proposition than for it; but the subject was one of great reach, and could hardly be discussed at this hour. The cause of hallucination did not, it seemed to him, prove much, because only a small part of the psychical mechanism was involved. On the other hand, the experiments of Dumont Paré proved little, because hypnotized subjects could be led to do almost any thing by slight suggestion. But pathological observations, the results of hemi-atrophies, of tumors on one side of the brain, studies regarding language, etc., all went to show that the two cerebral hemispheres had certain distinct functions, and that there were not two halves of the brain each having about the same function.

Dr. CHARLES HEITZMANN said that although he was not a specialist in this department, he had given considerable study to it, and he had received the impression that neurologists were not entirely clear in their ideas concerning the seat of irritation which caused hallucinations. Let the physiological fact be remembered that an impression upon our senses can be brought forward at any time in the shape of a protracted sensation or hallucination. Thus a peculiar sound might be heard which was merely the image of a

real sound, and constituted an hallucination. Every thing which we have learned is deposited in the brain, especially in the gray substance. In the case of the black cat, could the man have had an hallucination of a black cat if he had never seen a black cat? I doubt it. Wherever the centre for the image of the black cat may be, if any portion of the nerve tract leading from the retina to that centre be disturbed, it will be likely to excite that centre, and the image of the black cat will be revived. The special point of interest connected with the cases related was that they were unilateral. He asked if that might not be explained on the supposition that the irritation being upon one side led to the centre for the given image upon that side only.

Dr. SPITZKA said with regard to the duality of mind, that there could be little difference of opinion regarding the following facts: First, that the two cerebral hemispheres were alike in structure, the variations being no greater than in other symmetrical organs, if allowance be made for a higher type of development; the two hemispheres were united by a symmetrical commissure; they had corresponding peripheral tracts; they had about the same distribution of retinal fields; post-mortem examinations on the insane went to prove that the hemispheres were symmetrical; one hemisphere might be practically destroyed, and yet the individual retain power to exercise the several faculties of the mind, as reasoning, memory, judgment, etc., not, however, that there would be no paralysis or other symptoms. But it was a different matter entirely when it was suggested that unilateral hallucinations could exist when the corresponding hemisphere was perfectly healthy.

Dr. HAMMOND, in closing the discussion, said it was not his object in reading the paper to discuss specially the function of the optic thalamus. He might say, however, that he believed a person could have hallucinations without an optic thalamus at all, provided he had a cortex; but he believed also that he could have hallucinations without any cortex, provided he had an optic thalamus. In the former case the hallucinations would be due to revival of past impressions; in the latter case they would be original, having nothing to

do with former associations. A man without an optic thalamus could have an idea of a cat in the abstract, but he could not have an hallucination of a particular cat unless he had an optic thalamus. He believed that ideation resided in the cortex. With regard to the duality of the mind, many arguments might be brought forward, but time would not permit.

The Society adjourned.